The Danish polarimetric SAR for remote sensing applications - DTU Orbit (24/01/2019)

The Danish polarimetric SAR for remote sensing applications

Presents the Danish polarimetric SAR system, EMISAR, and the approach taken in the system design to achieve a reliable high performance system. The design and implementation of the antenna system as well as the analog and digital hardware are discussed. The SAR utilizes a dual polarised microstrip antenna with probe fed patches and the antenna exhibits a modified cosec-squared pattern with high polarisation discrimination. The two transmitted polarisations are time multiplexed at the transmitter and at the dual channel (V- and H-polar) receiver front end while azimuth pre-filtering is implemented by independent circuits for the four parallel channels (VV, VH, HV, and HH). The system has been designed to permit both C- and L-band data to be recorded on the same high density digital tape. The paper presents the performance of the system including measured resolution, peak- and integrated sidelobes, polarimetric channel imbalance and cross-talk.

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